

## **WEST VALLEY DEMONSTRATION PROJECT (WVDP) PHASE 1 DECOMMISSIONING SCOPE**

### **Waste Management Areas (WMAs)**

The West Valley Demonstration Project and the Western New York Nuclear Services Center (WNYNSC) has been divided into the 12 WMAs listed below. The locations of WMA 1 through WMA 10 are shown on the attached figure.

- WMA 1: Main Plant Process Building and Vitrification Facility Area
- WMA 2: Low-Level Waste Treatment Facility Area
- WMA 3: Waste Tank Farm Area
- WMA 4: Construction and Demolition Debris Landfill
- WMA 5: Waste Storage Area
- WMA 6: Central Project Premises
- WMA 7: NRC-licensed Disposal Area (NDA) and Associated Facilities
- WMA 8: State-licensed Disposal Area (SDA) and Associated Facilities. WMA 8 is managed and controlled by New York State and is not part of the WVDP Phase 1 Decommissioning WVDP.
- WMA 9: Radwaste Treatment System Drum Cell Area
- WMA 10: Support and Services Area
- WMA 11: Bulk Storage Warehouse and Hydrofracture Test Well Area. WMA 9 is managed and controlled by New York State and is not part of WVDP Phase 1 Decommissioning
- WMA 12: Balance of Site

### **PHASE 1 STARTING POINT**

The anticipated starting point for Phase 1 Decommissioning is the end of the Interim End State Contract. The starting point is summarized below.

**WMA 1** – The Main Plant Process Building (MPPB) will be in a “demo-ready” condition. Processing piping and most vessels will have been removed from the MPPB. 275 canisters of vitrified high-level radioactive waste still be stored in the MPPB awaiting future on-site storage. All systems required to safely store the HLW canisters in the MPPB will be operational. The Vitrification Facility will also be ‘demo-ready’

**WMA 2** – All facilities in WMA 2 will be operational.

**WMA 3** – The Waste Tanks will be monitored and maintained with a newly installed Tank and Vault Drying System operating.

**WMA 4** – The CDDL will be monitored and maintained.

**WMA 5** – All facilities with the exception of LSA 4 and the associated Shipping Depot and the Remote-Handled Waste Facility will be removed. The concrete floor slabs and foundations in the area will remain

**WMA 6** – Many of these facility will be operational or operable at the initiation od Phase 1.

WMA 7 – The NDA will be monitored and maintained. The Interceptor Trench and the Liquid Pretreatment System will be operational.

WMA 8 – The State-Licensed Disposal Area is a New York State responsibility and not part of this scope.

WMA 9 – The Drum Cell, the Subcontractor Maintenance Area, and the NDA Trench Container Area pad will remain.

WMA 10 – The New Warehouse will be operational. Concrete floor slabs and foundations will remain. The Meteorological Tower, Security Gatehouse, and security fence will remain in place and operational.

WMA 11 – Managed and controlled by New York State.

WMA 12 – The dams and reservoirs will continue to be monitored and maintained.

### **PHASE 1 DECOMMISSIONING ACTIVITIES**

The following provisions apply to Phase 1 decommissioning activities for all Waste Management Areas (WMAs):

- Decommissioning activities will be accomplished in accordance with an NRC-reviewed Decommissioning Plan, which will specify the appropriate DCGLs. The Decommissioning Plan will also provide information on analyses performed to estimate the impacts of residual radioactivity that will remain at the WVDP and the Western New York Nuclear Service Center (WNYNSC) after completion of Phase 1 decommissioning activities.
- All radioactive, hazardous, and mixed low-level radioactive waste generated during the work and with an immediate path to disposal will be disposed off site, with the possible exception of transuranic waste which could require temporary onsite storage pending a “defense determination.”
- Characterization surveys will be performed in Phase 1 to determine the nature and extent of surface soil and sediment contamination.
- Before excavated areas are backfilled, final radiological status surveys of these areas will be completed, including the associated independent verification surveys.
- Any excavation performed to remove slabs and foundations will be limited. If additional contamination were found at a depth greater than approximately 0.5 meter (2 feet), that contamination will be addressed as part of Phase 2.

Phase 1 activities in each WMA are summarized below.

WMA 1 – The canisters of vitrified high-level radioactive waste will be removed from the Main Plant Process Building and placed in a new Interim Storage Facility (likely a Dry Cask Storage Area) constructed early in Phase 1 on the South Plateau. The Main Plant Process Building areas that support high-level radioactive waste canister storage will be decontaminated to the point where the building could be demolished without containment. All facilities in WMA 1 will be completely removed, including the Main Plant Process Building, Utility Room, Utility Room Expansion, Plant Office Building, Vitrification Facility, Load-In/Load-Out Facility, Fire Pump house, Water Storage Tank, underground tanks (35104, 7D-13, 15D-6), all underground process, wastewater, and utility lines, Off-Gas Trench, and all remaining concrete slabs and foundations.

The source area of the North Plateau Groundwater Plume located beneath the Main Plant Process Building will be removed, with subsurface soil removed as necessary to meet DCGLs consistent with unrestricted release. A hydraulic barrier will be installed around the Main Plant Process Building area to control groundwater during excavation. The downgradient portion of this barrier will remain in place after the excavated area is backfilled.

To remove the plume source area and the below-grade structures of the Main Plant Process Building and the Vitrification Facility, an area larger than the footprints of these two buildings will be excavated. This excavation will extend into the Lavery till where necessary to accommodate removal of extended below grade structures such as the Cask Unloading Pool. Foundation piles exposed during soil removal will be cut at the bottom of the excavation or deeper if necessary to support unrestricted release. Underground lines within the excavated area will be removed. Pipeline sections remaining at the face of the excavation will be characterized and the portion of the piping within WMA 1 removed as necessary depending on the characterization results.

**WMA 2** – All facilities in WMA 2 will be removed. A hydraulic barrier wall will be installed northwest of Lagoons 1, 2, and 3, with excavations extending 0.6 meter (2 feet) into the Lavery till. The liners and underlying berms for Lagoons 4 and 5 will be removed. Underground lines within the excavated areas will be removed. Pipeline sections remaining at the face of the excavations will be characterized and the portion of the piping within WMA 2 removed as necessary depending on the characterization results.

**WMA 3** – The high-level radioactive waste mobilization and transfer pumps will be removed from the underground Waste Tanks. The Waste Tanks themselves will remain in place, as will the Permanent Ventilation System Building, STS Support Building, and underground piping in the area. The STS vessels and contents in Tank 8D-1 will remain in place. The Equipment Shelter and Condensers and Con-Ed Building will be removed. The Waste Tanks will continue to be monitored and maintained with the Tank and Vault Drying System operating as necessary. The piping used to convey high-level radioactive waste in the High-Level Waste Transfer Trench will be removed and the trench will remain in place. Pipe removal will be conducted with soil removal with cutoffs of the piping occurring somewhere between the excavation and the tanks. The barrier wall will also extend westward across the piping runs.

**WMA 4** – The CDDL will remain in place and continue to be monitored and maintained.

**WMA 5** – LSA 4 and the associated Shipping Depot and the Remote-Handled Waste Facility will be removed. The remaining concrete floor slabs and foundations in the area will also be removed.

**WMA 6** – The Sewage Treatment Plant and the South Waste Tank Farm Test Tower will be removed, along with the remaining concrete floor slabs and foundations, asphalt pads, and gravel pads. The Equalization Basin and Tank, and the Demineralizer Sludge Ponds and the Low-Level Waste Rail Packaging and Staging Area will be removed. The rail spur will remain operational, potentially with a new terminus due to the excavation of the Main Plant Process Building.

**WMA 7** – The NDA will continue to be monitored and maintained. The Interceptor Trench and the Liquid Pretreatment System will remain operational. The buried leachate transfer line will remain in place. The remaining concrete slabs and gravel pads associated with the NDA Hardstand will be removed. The NDA is subject to actions requested by NYSDEC during the 30-

year ongoing assessment period. However the pad associated with the NDA Hardstand and the Trench Soil Container Area will be removed under the WMA 9 scope of work.

**WMA 8** – The State-Licensed Disposal Area is a New York State responsibility and not part of this scope.

**WMA 9** – The Drum Cell and the Subcontractor Maintenance Area will be removed, along with the associated instrumentation monitoring shed. The NDA Trench Container Area pad will also be removed.

**WMA 10** – The New Warehouse and the remaining concrete floor slabs and foundations will be removed. The Meteorological Tower, Security Gatehouse, and security fence will remain in place and operational.

**WMA 11** – No decommissioning actions will be implemented.

**WMA 12** – The dams and reservoirs will continue to be monitored and maintained. Sediment and surface soils will be characterized to evaluate any potential contamination.

**North Plateau Groundwater Plume** – The source area of the North Plateau Groundwater Plume will be removed with WMA 1. The nonsource area of the North Plateau Groundwater Plume will be contained by the permeable treatment wall installed during the Interim End State. The groundwater will continued to be monitored. The Groundwater Recovery System will be removed.

## **ADDITIONAL PHASE 1 DECOMMISSIONING INFORMATION**

### **Phase 1 Data Collection, Studies, and Monitoring**

The following types of studies will be performed during Phase 1:

- Characterization studies, which will include sampling of surface soil and stream sediments and characterization of selected underground piping that will be exposed during other removal activities;
- Data collection and studies to improve understanding of the removal option or improve its viability, such as monitoring and evaluating technology developments regarding disposal facilities for orphan waste, underground waste tank cleaning and exhumation, and exhuming buried radioactive waste; and
- Data collection and studies to improve understanding of the in-place closure option or improve its viability, such as research related to long-term performance of engineered barriers and work to enhance site erosion and hydrology models.

### **New Construction**

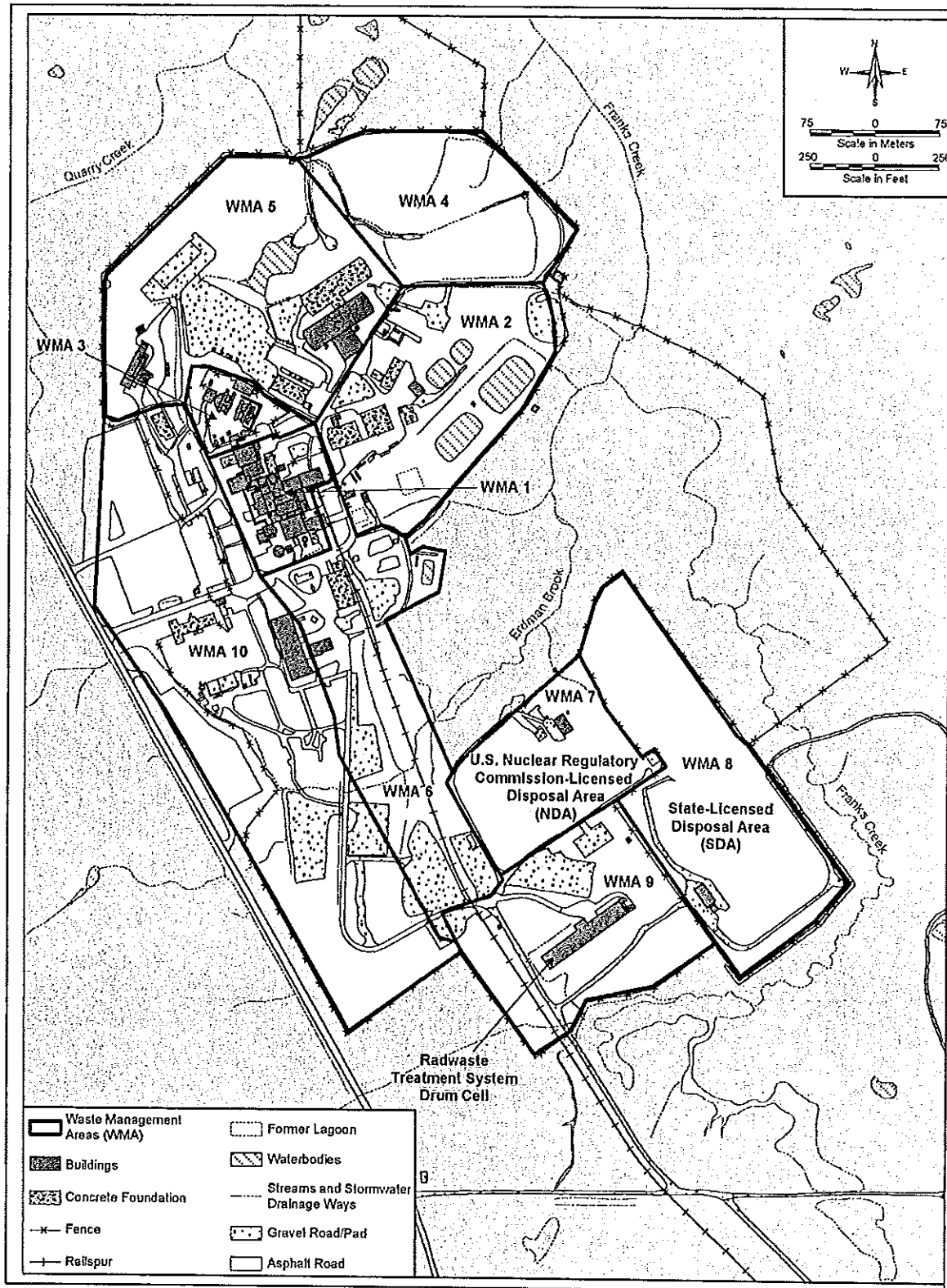
The following new construction will be required to support decommissioning activities at WVDP for Phase 1 Decommissioning:

- An Interim Storage Facility (Dry Cask Storage Area) will be located in the southern portion of WMA 6 on the west side of the rail spur to temporarily store the high-level radioactive waste canisters from WMA 1 until an offsite repository becomes available.
- A Main Plant Process Building excavation downgradient-barrier-wall in WMA 1 to facilitate removal of below-grade structures and contaminated soil associated with the source area of the North Plateau Groundwater Plume.
- A low-permeability subsurface barrier wall will be installed in WMA 2 northwest of Lagoons 1, 2, and 3 to control groundwater.

**Waste Generation**

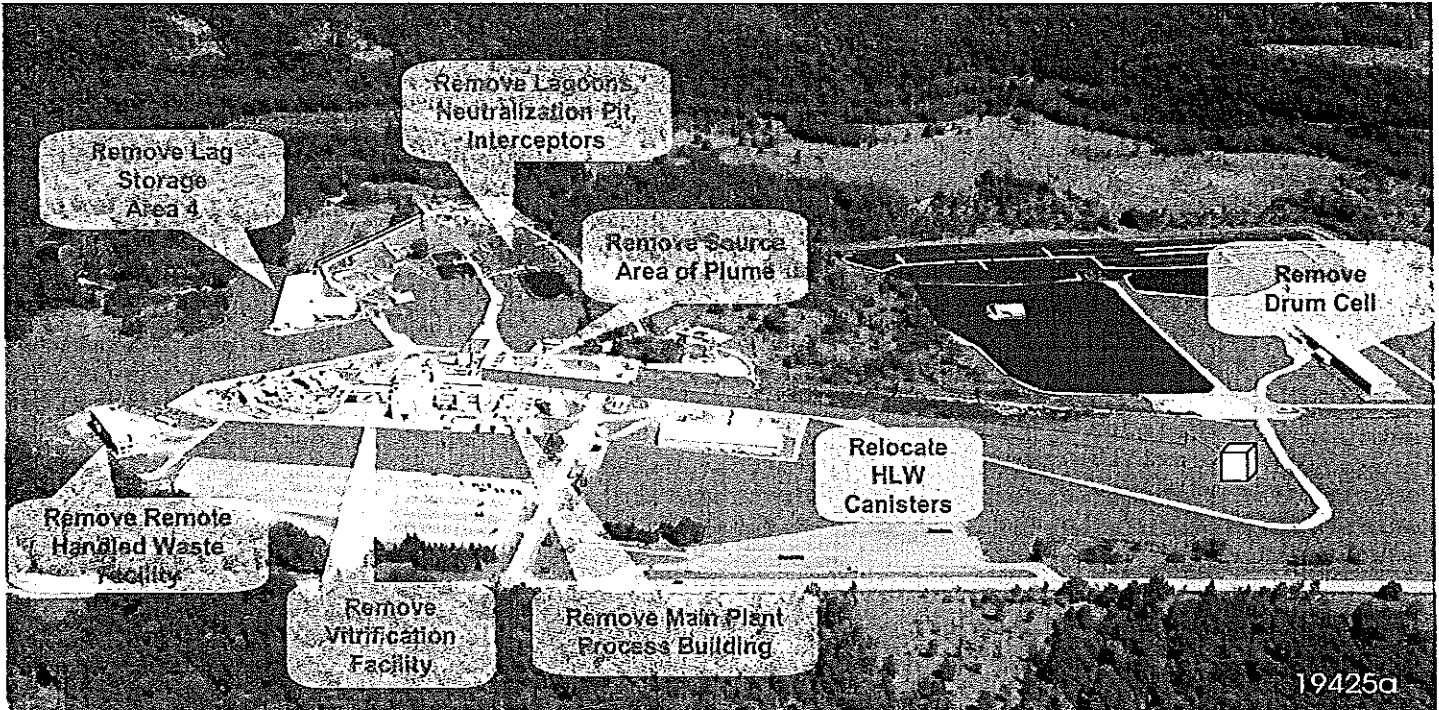
The waste volumes expected to be generated under Phase 1 Decommissioning are estimated as follows:

- Construction and demolition debris: 35,000 cubic meters (1.2 million cubic feet)
- Hazardous waste: 7 cubic meters (260 cubic feet)
- Low-level radioactive waste: 180,000 cubic meters (6.2 million cubic feet)
- Greater-Than-Class C waste: 0
- Transuranic waste: 710 cubic meters (25,000 cubic feet)
- Mixed low-level radioactive waste: 41 cubic meters (1,400 cubic feet)

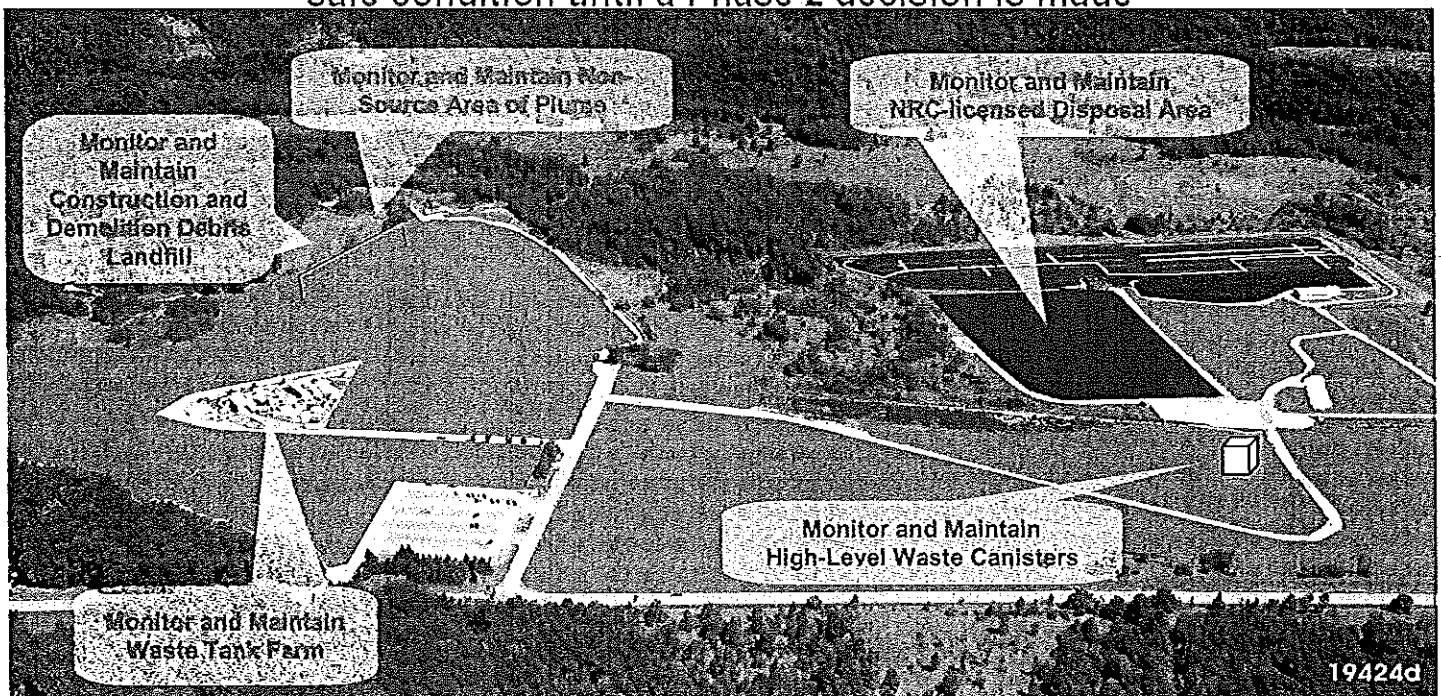


# Phase 1 Activities

Most of remaining facilities will be removed; characterization and potential remediation of surface soils and stream sediment within Project premises



Remaining facilities will be monitored and maintained in a safe condition until a Phase 2 decision is made



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